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ABSTRACT

This Topical Paper presents the viewpoints of several practitioners in the field of institutional research. It's oriented toward providing the initiate to the profession with guidelines to successfully implement a practice. Specific topics covered are: (1) organization and administration of institutional research; (2) building the foundations of institutional research; (3) standards for statistical surveys; and (4) reviews of institutional research at several 2-year colleges. (AL)

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THE PRACTITIONER VIEWS INSTITUTIONAL RESEARCH

Edited by
Young Park
with a Foreword by
Paul Elsner

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ACKNOWLEDGMENTS

It is appropriate that, in the midst of rising demands for accountability, a publication written by community college practitioners should be widely circulated. While we still see a serious lack of self-analysis by educational institutions, this Topical Paper is evidence that some are devoting time and energy to alleviating this neglect.

It is noteworthy that research and development in the community college are taking on new dimensions, that collection and analysis of pertinent information are directed to data that will have significant influence on decision making rather than to mere presentations of statistics in support of some theoretical design.

I should like to thank the authors, who took time from busy schedules to contribute to this Topical Paper. I have taken the liberty of deleting and adding to the manuscripts—any errors or omissions are therefore my responsibility. The smooth transition and concise quality are the results of the editing so ably done by Hazel Horn.

Young Park

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FOREWORD

In general, junior colleges have not made a significant commitment to institutional research. At the same time, like all other sectors of higher education, they are asked to look more introspectively at their operations at a time of critically scarce resources. Roueche and Boggs (3) assessed the level of commitment to institutional research in junior colleges in their state-of-the-art monograph. Earlier, Swanson (5) had provided a comprehensive assessment of institutional research in junior colleges across the country. Both reports found that the activity was narrow in scope and that only a fraction of the colleges could report actual on-going institutional investigations. Earlier reports appear to bear this out.

More recently, Schafer and Turner (4) presented a topical paper to the Florida Community Junior College Inter-Institutional Research Council, outlining an analytical framework for viewing institutional research in the junior college. Their introductory comments deserve restating here:

> The issue of research has only recently become prominent in the community college environment. Pioneer writers and publicists of public junior college development, in concentrating largely on the teaching function of the institution, gave but passing attention to the activity. Indeed, these early advocates often differentiated the community college from senior institutions in terms of its teaching emphasis and quality as contrasted to the lighter stress on research. An orientation away from research thus became an inherent part of the community college mystique, and was usually translated by it into heavier teaching loads and more faculty involvement with students.
>
> The last few years, however, have seen a growing inquiry into whether community colleges are, in fact, fulfilling the high aims once so confidently announced. Though still muted, demands for evidence are beginning to be heard. Even the most ardent proponents of the movement appear to recognize shortcomings and a consequent need for a firmer base for institutional philosophy and methods [that] would come from empirical study. Yet there is no general agreement on the scope of desirable research, or on preferable approaches for its accomplishment. Not only is there a lack of consensus, but discussion of the subject suffers from semantic obscurities and scanty information. The role of research in the institution does not seem to have been subjected to much rigorous analysis.

So many such statements substantiate the absence of research that we need not belabor the point. We must emphasize that, in an era of scarce resources, when a wide range of publics are demanding better analysis of institutional goals and more sharply defined criteria to test the return on the investment of educational dollars, we as junior colleges find ourselves without a well planned program of institutional self-study. When institutional research is conducted, the data are often poorly related to decision making or fall into the category called "fugitive data" that never reaches the hands of those who might be able to use it. In summary, the bibliography on institutional research in the junior college bears out the same conclusion—little or none is being carried out by most of our institutions.

Recently several junior college institutional research officers met in St. Louis to develop a National Demonstration project in Institutional Research under the auspices of the League for Innovation in the Junior College. Representatives from Dallas, St. Louis, Peralta, the Coast, Cuyahoga, Santa Fe, and several other districts met to determine how to implement a model demonstration project on a pilot basis in six to eight major districts across the country.

They agreed that five major components should be included in any comprehensive program, and recommended institutional research that:

1. assesses the allocation of resources
2. assesses student potential
3. assesses achievement
4. analyzes curriculum and program needs and priorities
5. assesses the college's impact on the community.

A sixth category, which is not really a separate component, was added, namely, providing such research assistance as advising a staff member on research design, dissemination of reports, and other technical or consultative services.

Most of these categories are self-explanatory, but some sub-categories need to be explained. In effect, the St. Louis group developed a taxonomy of institutional research functions under the five broad categories listed above.

As an example, component one (1) was further developed in this manner:

1. Institutional research that assesses allocation of resources

   Basically, this first component would attempt to develop methodologies and data gathering that permit better management decisions. Three basic considerations are subsumed under this component. The first would in-

> volve [how] institutions allocate fiscal resources; the second [how they] allocate personnel resources; and the third. . . would systematically analyze [how they] allocate physical resources. Included under the analysis of fiscal resources would be such. . . studies as cost effectiveness, allocation of resources for specific functions in the institution, cost benefit analysis, and unit cost analysis relating to. . . plant operation, maintenance, cost per instruction, etc.

Each component has been developed so that a handbook or manual can be written on how to set up various institutional research services.

Component three (3), for example, relates achievement to four sub-categories: (a) to incoming student characteristics, (b) to instructional methodologies, (c) to student expectations, and (d) to institutional climates.

In general the League's National Demonstration project would attempt to renew an interest in institutional research and to implement model demonstration programs in several community colleges.

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Paul A. Elsner, Vice Chancellor
The Peralta Colleges

ORGANIZATION AND ADMINISTRATION OF INSTITUTIONAL RESEARCH IN JUNIOR COLLEGES

JAMES E. COOK
Vice President for Research and Development
Kellogg Community College

REVIEW

The days of flying by the seat of the pants are over—in both aviation and higher education. Early in the 1960s, in a three-year Carnegie-funded study, Rourke and Brooks observed that, as booming enrollments force the costs of higher education constantly upward, more legislators and executive officials will ask college and university officials for more refined data about their operations (4:64-65).

As if in fulfillment of this prediction, one view became clear in the 1970 meeting of the Education Commission of the States:

> Many governors and top state education officials believe that the public is becoming more and more unhappy with the nation's educational system and that education must find ways of measuring how effective it really is (5:1-2).

Institutional research emerged in the 1960s as a form of organizational self-study to help colleges and universities gather information about their internal operations and how effectively they use their resources. Officers hope to use these data for making informed judgments rather than guessing or relying on intuition (4:44).

The need for institutional research among colleges and universities applies equally to the nation's junior colleges—perhaps even more so. The need could be based on the open-door admissions policy and the concomitant challenge to counsel wisely, place students and follow up on them; on the acceptance of occupational education as a proper function of the junior college with its accompanying obligation to survey employment trends accurately and to maintain close liaison with business and industry; on the need to maintain such standards of instruction as will ensure satisfactory transfer of students to senior in-

stitutions; and on the need to keep the local community informed and willing to support the college—their college. This partial list presents a strong rationale for junior colleges to engage in internal research.

The response from junior colleges, however, has been extremely limited in both quantity and quality. Surveys conducted between 1959 and 1968 indicated that less than one-quarter of the institutions undertook any coordinated research activity (6:11), and that less than one-fifth had formal programs of institutional research (7:180). Fewer than 2% had written policies; fewer than 10% had a seperate budget item for research (7:182). The average junior college completed only one institutional research study per year, nearly half of them devoted to "students" (3:47). Six studies out of seven were characterized by faulty design, poor methodology, and inappropriate conclusions (3:36).

Institutional evaluation is ultimately the president's responsibility. Aaron Brumbaugh, in his pioneering monograph, first noted that the key to effective research is the ability of the college president and his staff to ask the right questions (1:2). Nearly ten years later, Roueche and Boggs concluded that, if the president is asking the right questions, the odds are good that the answers will be found (3:50).

Where does the president turn for help in asking the right questions? Specifically, where does he turn for help in assessing his college's present efforts in institutional research or for help in reviewing the policies and procedures behind his institutional research operations? Assuming that a formal organization of effort is justified, where does he turn for help in identifying a qualified director/coordinator and in structuring a viable position?

A review of the literature, oriented principally to senior colleges and universities, is devoted largely to the *need for* and the *product of*, not the *process of*, institutional research. Findings of the 1969 Van Istendal project covered institutional responses that summarized the need for planning, organizing, and establishing procedures for a program of institutional research (8:82).

RECENT RESEARCH

A recently completed study by Cook (2) was an exploratory, empirical work drawing on the experience of many knowledgeable people. Its purpose was to develop guidelines for junior college administrators to use in organizing, ad-

ministering, and evaluating their programs of institutional research. The following paragraphs summarize the study and its findings.

The initial data for the Cook study came from a review of the literature. Each relevant concept identified was treated as a position statement and phrased as a positive criterion. One hundred ten suggested criterion statements were prepared in checklist form for a mailed questionnaire.

Institutional research concerns not only those who prepare the data but also a variety of consumers interested in the findings. The jury of 215 members who validated the 110 suggested criterion statements was therefore selected from five populations: public junior college presidents; junior college directors of institutional research; professors of higher educatior with special experience in either the junior college or institutional research; officers of the regional accrediting associations working with junior colleges; and state-level administrators of junior college education. While breadth of perspective was thus encouraged, the study's purpose was still to develop practical guidelines for junior college administrators. Accordingly, the greatest voice was given to junior college presidents and directors of institutional research.

Replies from 199 of the 215 jurors showed a median of three years' experience in their specialty at their place of employment. In addition, 155 jurors reported a median of four years' experience at previous institutions. The mode was two years and three years respectively.

The participants from the junior colleges represented institutions of all sizes. Responses from 138 junior college jurors placed the median enrollment in their institutions at 1,358 full-time students; responses from 134 jurors placed their median total enrollment at 2,690 students.

EMERGING GUIDELINES

By its nature, the focus of the Cook study was not on prevailing practice, but on what "should be." The conclusions drawn are, by their substance, guidelines recommended for organizing, administering, and evaluating programs of institutional research in junior colleges. These conclusions are paraphrased as follows:

1. The questionnaire response rate and comments volunteered by respondents show a considerable interest in institutional research and recognize the need for guidelines to organize and administer it.

2. Although many topics are appropriate for institutional research in a junior college, assignment of priorities permits a better concentration of effort.

3. Highest priority is given to the "student" category of inquiry, including enrollment trends, student profiles, attrition, and follow-up studies.

4. Inquiry into institutional goals also has a high priority, as do the relationship of goals with "community" or institutional environment, and the adequacy of statements of purpose as a reference for decisions.

5. In curriculum and instruction, prime importance is attached to the relationship of curriculum structure to goals, the relevance of course offerings to the nature of the student body, and the conditions that encourage experimentation with new techniques of teaching and learning.

6. High priority in management-related inquiry is given to space-use studies, budget analyses, funding trends, and improvement of relations with area high schools.

7. The office of institutional research, while it should collect data needed for direct assistance in development, evaluation, and control of operations, should remain free of identification with any specific policy or action.

8. The office should be guided by a philosophy that invites individuals and offices to engage in certain aspects of the total task. A coordinating committee of all officers so engaged should be established.

9. A general advisory committee should adopt a statement of basic principles for institutional research activities of the college, advise on project priorities, and assist in planning activities.

10. In studies of academic matters, the office should provide design and evaluation services to individual faculty members who are experimenting with new approaches to teaching and learning. It should also summarize and disseminate experimental findings from other campuses.

11. The office should maintain a master list and file copies of all institutional studies (completed and in progress) and of selected publications related to present or contemplated college policies and programs.

12. In addition to the findings, institutional research reports should include the population studied, the data-gathering techniques, interpretational cautions, alternate courses of action, and the implications of each.

13. The director of institutional research should not only initiate studies, but also repeat certain ones over a period of time to perfect methodology and identify trends. He should also sharpen definitions and develop procedural standards for greater consistency in the gathering and maintaining of data by all units.

14. He should participate in inter-institutional research by completing and returning questionnaires seeking institutional data from him, and by studying practices at other colleges.

15. The circulation of the research reports is best determined by the purpose and content of the study, whether or not this practice is specified in the statement of policy.

16. The director should hold a staff position and report to the president.

17. He should be a member of the administrative councils, standing and/or special study committees, and a consultant to offices responsible for obtaining financial support.

18. In the course of his work, the director should take part in the decision-making process, though actual decisions must be made by line officers with operating responsibilities. His role should be one of interpreting data, identifying trends, and suggesting alternate courses of action.

19. In the smaller junior college (those having less than 1,000 full-time students), the office of institutional research should be coordinated by an administrator on a part-time basis. In the larger institutions, he should be full-time.

20. The qualifications most desired in the director are graduate work in methods of educational research and statistics, and knowledge of systems analysis and electronic data processing. Acquaintance with community college operations and graduate work in higher education are also recommended.

21. The office should be adequately funded by a separate item in the college budget, for operating expenses, for in-service training, and for the services of consultants for specialized studies.

22. As a cautionary note: inquiry into some of an institution's internal operations is hazardous, and the office of institutional research is well advised to wait for an invitation to work in such areas. Examples are: studies of faculty, their morale, and productivity; incorporation of new knowledge into, and elimination of duplication from, the curriculum; preparation of educational specifications and priorities for construction; administrative functions, policies, and procedures, and their acceptance by the faculty; the views of legislators toward the college and prospects for increased funding; and public understanding and support of community services.

23. As a further caution: while the office of institutional research should avoid becoming separated from the study of immediate problems, it should not become involved in the actual implementation of operations. To perfect methodology and identify trend data, the office should not relinquish its jurisdiction/involvement with studies that must be repeated annually or periodically. To avoid dissipating the strength and/or focus of its efforts, it should not become the secretariat for faculty committees or become involved in the conduct of faculty workshops. In preparing his reports, the director should not attempt to escape his responsibility for interpreting data and developing implications by merely letting "the facts speak for themselves." Finally, he should not attempt to govern the circulation of institutional research reports.

CONCLUSION

Conclusions from the total study, including the questionnaire survey, juror comments, and the review of the literature, lead to this observation: The essential first step is an administrative style characterized by reliance on data gathering and information as requisites for decision making—supplementing, if not replacing, intuition and tradition. The president is the key to setting this style. The administration and faculty, but particularly the president, must display a willingness to use data and act on them. Without a prior commitment to have its findings put into practice, research is doomed to failure. Conversely, if the junior college president is committed to institutional research, the activity will be supported and probably succeed.

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8/9

INSTITUTIONAL RESEARCH AT THE TWO-YEAR COLLEGE: BUILDING THE FOUNDATIONS

FRED A. SNYDER
Director, Research and Planning Division
Virginia Department of Community Colleges

Early in his efforts to begin a program of institutional research, the would-be researcher may be frustrated by the potential scope of his role. If he is an experienced two-year college educator, he may think about changing educational objectives, "new" students and implications for the educational program, conflicting rationales for learning and grading, and emerging instructional systems with emphasis on "mastery" of learning. He may be reminded that the community college must remain aware of the community and its cultural, economic, and manpower aspects. He can expect the president to want studies on room use, curricular cost analyses, faculty loads and costs, and other management-oriented projects. The president may go so far as to note the need for cost-benefit alternatives for basic educational-management decisions that the college must face in the next several years.

The press for accountability has descended on the two-year college and cannot be put off. Legislators, board members, taxpayers, even students and parents are asking the college to account for its efforts and resources. It must respond, for the alternative to self-examination and direction is submission to interests beyond the college. These conditions have given crucial impetus to the role of the institutional researcher.

This paper is addressed to the *researcher-aspirant,* who is just beginning to plan and conduct institutional research. It provides practical advice on a number of issues:

- Laying the groundwork
- Developing priorities
- Sustaining institutional support
- Involving the faculty
- Assessing results
- Maintaining professional growth

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LAYING THE GROUNDWORK

Whether the role is full-time or part-time, the *sine qua non* of the aspiring researcher is to have the role confirmed by the president or another administrator to whom he must turn for support. Institutional acknowledgment of the research role and knowing the lines of authority and responsibility are essential if research is to get done. The full-time researcher will usually have little problem with role recognition and supervisory relationships, but if his previous job was in the same institution, he must make sure to whom he is now responsible. It is not practical here to indicate to whom he should report, as the scope of his role should determine that. If the role is restricted to study of student characteristics and outcomes, he may well report to the dean of students; if to instructional systems development, he should report to the dean of instruction; if to facility utilization, costs, and related management studies, he may report to the dean of administration.

Where a comprehensive program of institutional research is intended, the director should report to the president, or, in larger colleges, to the vice-president for planning and development. The advantage of reporting to the chief executive officer is the likelihood of greater understanding and support.

The part-time researcher may find several organizational relationships. He may continue to report to his earlier supervisor—e.g., director of counseling, dean of students, or academic division chairman—for both aspects of his dual role. The part-time researcher may report separately for each role to two supervisors—for example, to the director of counseling and to the dean of students for his respective counseling and research roles. Some conflict may result from this dual supervisory approach. Of course, if the research role is expected to predominate, his relationship should be with his IR supervisor. Where a college can support only a part-time role, the writer favors the latter arrangement.

As many two-year colleges cannot support a comprehensive research effort, at least during their early years, both the scope and the early research objectives must be clearly specified. In one college, the first year of IR emphasized developing a data base and descriptive information about students and educational outcomes. The second year was on special student groups, the community, and the faculty. The third year continued this diversity, but emphasized instructional research. Since resources are always limited, however, decisions must be made at the beginning on what research will (and will not) be done.

Available resources are ideally tailored to the scope and extent of activities to be conducted. If the proposal for the new research function was well-developed, it will have provided for clerical help, office space, travel and related expense, and data processing. It will also have included a total budget, to be administered by the director of institutional research.

In many instances, however, institutional research will emerge in a less auspicious manner. An existing staff member, perhaps granted released time from current duties, may find no definite support, no plan for clerical aid, work space, supplies, travel expenses, or data processing. He must remember to plan for better support during the next budget year. Such planning is discussed in subsequent sections of this paper.

The researcher may not know how to assess needed resources before his objectives and duties are clarified. His supervisor may already have determined these, or he may merely remark that "we need more information about our students and our graduates. . . ." In any case, clear objectives must be set for planning the first year's activities and be further developed into a list of research projects. Such planning, including specific, approved projects, is likely to elicit better support than if it is called just "research." It also allows for a rational adjustment of the scope of approved research projects to existing college support, thus increasing the probability of achieving early research objectives and gaining solid support for subsequent activity. Such early planning will allow the researcher to:

1. focus only on the project or projects of greatest acknowledged value to the college
2. avoid cost overruns and the resulting inability to complete projects because of lack of funds
3. demonstrate a model of rational planning and acquire experience for subsequent planning
4. demonstrate the value and practicality of institutional research, even at a small college.

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DEVELOPING PRIORITIES

The problem of developing priorities for IR activities has several aspects, two of which are the secondary activities often attached to the research office and the need to choose the most promising research projects from the many proposed.

At the two-year college, the function of institutional research is often accompanied by a variety of data collecting and reporting activities. The researcher may be expected to coordinate an array of periodic reports to state and federal agencies. With adequate clerical support, this function can usually be absorbed, but it tends to displace the more significant and valuable research function. The danger may be more pronounced with the part-time researcher, and the writer suspects that many find little time to do their work because of this largely routine data collection and reporting. Adding the role of handyman or assistant to the president to the researcher's activities creates a similar problem.

Clearly such activities as providing miscellaneous services for the president may be necessary, but they must be placed in proper perspective and not allowed to displace the more valuable research activities. If communications between supervisor and researcher are reasonably easy, the matter can be adjusted.

The crucial problem is choosing the most necessary research projects from all that might be done. A reasonably creative educational researcher can see a score of potentially valuable projects, but limited time and resources prohibit them. The development of research priorities should be tied to the educational objectives of the college. For example, if a college wants to enlarge educational opportunities for all socio-economic and cultural strata, the following sequence of research objectives might emerge:

1. describe the characteristics of the current student body
2. examine the retention and graduation patterns of recent students
3. study the demographic and employment characteristics of the community
4. assess the views of specific population groups on the college and its programs.

The results of this sequence can be used to modify admissions procedures, educational programs, student services, and public information, and can contribute to such far-reaching decisions as where to locate new campuses and what new programs to develop. Clearly, only a large IR effort could carry out all the studies simultaneously, but a smaller effort could accommodate them over a longer period. Finally, research priorities should not be inscribed in gold, but must respond to new conditions at the college.

SUSTAINING INSTITUTIONAL SUPPORT

The president will be keenly interested in activities that will support the educational objectives of the college, and, as institutional research demonstrates its vitality and usefulness, his support can be expected to grow. His support is essential to the whole institutional research effort, which must be directed toward objectives he approves. The researcher must also work toward useful "products," namely, well-written research reports, lists of recommendations (if he is expected to develop them), and a definite procedure for disseminating research findings.

A common impetus to starting a program of institutional research is the need to conduct a college self-study or to prepare for an accreditation visit, for preparations must begin well in advance. If they begin early enough, the researcher can make a considerable contribution. Administrators and faculty alike will come to acknowledge the value of a continuing research program.

If the research program is to be an on-going activity, it must be upheld by adequate budgetary planning. Personnel costs will vary by qualifications of the personnel and by geographic region. The use of a multiple-register calculator is essential for tabulations; it is not a substitute for free access to a computer. If programing assistance is not available from the college computing center and it must be contracted for, the budget must be increased accordingly. Funds are necessary for routine travel in the region of the college, plus two trips annually to national association conferences, if the researcher is to keep up with new IR activity.

INVOLVING THE FACULTY

Institutional research is generally considered valuable only if findings are disseminated to those who conduct the educational processes and are incorporated in subsequent practices. The users of research are the faculty and ad-

ministrative staff. The not-so-old adage that community colleges are teaching institutions (and therefore their faculty should eschew research and publication) has had an unfortunate effect. It has contributed to a static model of traditional instruction and curriculum design, usually modeled on the four-year college or university. To the extent that the community college is committed to educational programs and services relevant to a specific community, to "new" student groups, and to new educational programs, the emphasis on "teaching only" has been counter-productive. The faculty at the community college should also engage in innovation and in research activities on educational programs, students, and learning outcomes.

Both the relevancy and use of research are enhanced by instructional and adminstrative staff participation, which appears to be increasing. As a result, several principles are offered as a guide to obtaining faculty support:

1. Staff participation should occur in their primary areas. For example, the mathematics instructor might be encouraged to conduct a study on student attitudes toward mathematics, and use the results in subsequently developing a way to teach beginning mathematics students.

2. Specific research and development projects should be officially acknowledged by the college. This can be done either through released time from teaching or other duties or through additional compensation.

3. Faculty involvement in a project should be preceded by a contract signed by the faculty member and a college representative. It should describe the project objectives, conditions of time released or compensation granted, and finished product (written report, instructional system, instructional devices, etc.). Such a contract must be followed in spirit rather than literally, as early plans will often be inadequate. The institutional researcher should review and approve such agreements, for he can do much to assure their efficacy.

A faculty committee for institutional research has much in its favor. It can help personnel identify research needs, assess the efforts, encourage faculty involvement as appropriate, and generally help to relate research efforts to the basic functions of the college. The nature and role of the committee cannot be generalized completely, as they relate to several local conditions. A research committee may contribute effectively to a broad and comprehensive program,

but relatively little to be a narrowly defined or part-time program. Generally, the committee members should have some appreciation for institutional research and how it can enhance the operation of the college. The committee's role should be expressed in writing, and be subject to occasional modification. Research committees have several appropriate functions:

1. assist the director in identifying research needs

2. serve as liaison between the research function and the faculty as a whole, communicate the purposes of research, consider techniques for disseminating the findings, and relate current or recent research findings to current problems faced by faculty groups

3. assess the value of past research activities and recommend new directions.

ASSESSING RESULTS

The assessment of the results of his activities may be far from the mind of the beginning researcher, but, after starting several specific projects, the need for it will become apparent. Annual budgeting requires that research activities (even objectives) be specified according to personnel, equipment, supplies, and related expenses. How dollars are allocated to the research function depends on the perceived value of past and future outcomes. Several criteria for evaluating the IR program are:

1. Were research projects completed and results reported to the president, administrators, and other groups?

2. Were the objectives of the projects realized? Were the findings expressed in useful form for other college educators?

3. Were the costs of the projects in line with anticipated costs and in line with costs at other colleges?

4. Do instructors and administrators have a positive attitude toward the institutional research effort?

5. How have the results of past research been incorporated in the operation of the college?

6. What recommendations exist for future research projects and procedures?

The basic responsibility for assessing the results of research activity should lie with the director. He has direct access to the data, and his assessment is consistent with self-study by an academic division or by the college. A prime value of self-study is the knowledge gained by the assessor, but the research committee should probably share in the assessment. At any rate, a written report of the evaluation should be submitted to the president or the director's superior administrator.

A formal review of research activity should not be made before the end of the second year of operation, as the payoff from most research activity will not begin during the first year.

MAINTAINING PROFESSIONAL GROWTH

An accepted premise in higher education is that staff members must work in an environment that nurtures their professional growth, regardless of professional role. This applies especially to the new researcher, who may have to work not only without researcher colleagues but with limited experience himself.

Directions for professional growth vary among individuals. One director may need to sharpen his knowledge of statistical analysis. Another may have a rich background in data analysis, but less in the philosophy and role of the community college. Still another may have experience in social and community research, but little in education or learning. Many will lack experience in how to start a new research program. While there is no easy fulfillment of such needs, the new researcher will want to avail himself of all chances to enrich his experience. They include reading professional publications, visiting advanced research facilities, and attending professional conferences.

It is not practical to include a comprehensive list of periodicals in this paper, but several are noted to indicate the breadth of possibilities:

Junior College Research Review provides occasional summaries of research on selected topics. Perusal of back issues through 1968 is recommended.

College Student Personnel Journal illustrates research on topics related

to students and student services. Many other journals in counseling, education, psychology, and sociology would be helpful.

Research in Education abstracts monthly all studies and reports submitted to the Educational Resources Information Center. All items related to the two-year college are listed under the heading "Junior College."

Junior College Journal reflects a basic two-year college philosophy and contains some research articles. A perusal of the last five years' issues is recommended.

Chronicle of Higher Education, a weekly, is the only authoritative national news report of higher education and presents an overview of current issues.

Actually, no list of publications could be complete, as the interests of researchers are wide and the literature profuse. A growing number on research and on the two-year college are being produced by AAJC, ERIC clearinghouses, research centers and consortia, and individual colleges. A recent summary of publications on higher education may be useful to those interested in the administration of higher education (2).

Of immediate value to the new institutional researcher is the monograph *Junior College Institutional Research: The State of the Art* (3). It reviews institutional research practices at selected two-year colleges and presents several conclusions and implications. A useful bibliography is included, even though it is now three years out of date. For the more sophisticated researcher, the book *Institutional Research in the University* (1) discusses the broad institutional research function. Separate chapters treat specific aspects of IR, so that the reader can concentrate on his concern of the moment. The serious researcher should not avoid this book merely because it has a university setting; many chapters apply to the two-year college.

The importance of field trips to centers of research cannot be over-estimated. They can illustrate the how-to-do and what-to-do, and allow one to meet experienced and talented researchers who can give advice and assistance. Many two-year colleges with existing and useful research activities are amenable to receiving visitors.

Professional conferences continue to be a prime source of personal enrichment and renewal. Both the American Educational Research Association (AERA) and the Association of Institutional Research (AIR) have active two-year college subgroups, making attendance at their national conferences worthwhile. Other local and state research groups abound, but they vary in purpose and relevance to the two-year college. Information about them can usually be obtained from a neighboring college.

The above activities are no substitute for conducting research and writing reports. Direct experience, combined with visits, conferences, and workshops, will accelerate professional growth to the mutual benefit of the individual and the college. The research budget should allow for personal travel expenses, and good judgment should insure a proper relationship between research activities and travel.

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STANDARDS FOR STATISTICAL SURVEYS*

Introduction

Recommendations for planning and conducting statistical surveys have been developed by the Bureau of the Budget in consultation with the statistical agencies of the Federal Government. They are intended as guides to good statistical practice in surveys conducted by federal agencies or under federal sponsorship, by universities, market research firms, trade associations, or other organizations.

As used here, a "statistical survey" is one intended to supply data on a particular class, segment, activity, or area, but on which no administrative action is taken on the basis of the individual return itself.

Standards cannot be applied uniformly or precisely in all situations. Special considerations may be involved in exploratory, experimental, or methodological surveys, or in pilot or preliminary surveys to evaluate alternative approaches or techniques. Similarly, no single survey design can meet all requirements. A particular design should be appropriate for a given set of purposes and consider time and cost. Such consideration will help to determine, for example, whether to conduct a survey by mail or by personal interview, whether to use complete enumeration, some systematic sample design or "cut off" procedure, or some other device for selection of the respondents.

Survey Standards

The first step in planning a survey is determining the precise purposes to be served by the information to be collected, by the hypotheses to be tested, or by the problems to be solved. Prepare a concise statement of the quantitative information needed and the exact purpose it will serve.

Before the scope and content of a survey are determined, prior and current work in the field should be reviewed, and the problem defined in relation to it.

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*Executive Office of the President. U.S. Bureau of the Budget, Division of Statistical Standards, March 28, 1952. Circular No. A 46.

Decisions should be reached on each of the following points according to the purposes, costs, time, degree of precision, administrative limitations (established practices, location of field offices, etc.), and need for including or excluding specific areas:

1. *Respondents.* Define the respondent group by the classes, segments, or areas to be included, and the availability of source materials, such as mailing lists, maps, and directories.

2. *Extent of Coverage.* Within the respondent group selected, decide whether enumeration should be complete or partial; if partial, whether by means of a probability sample, "cut-off" point, or other plan. (The sampling plan for partial-coverage surveys is described later on.)

3. *Frequency and Timing.* Determine whether the survey is to be single-time, recurrent, or periodic, and, if periodic, at what interval. Consider the timing in relation to cyclical or other variations over time in the data being studied.

4. *Method of Collection.* Decide if the information is to be collected by mail, personal interview, telephone, telegraph, etc., or by some combination of them.

5. *Consideration of Nonsampling Errors.* Before the final decision on method, identify the main sources of bias and of accidental and nonrandom errors anticipated from alternative procedures, make plans for testing the reliability of the data and studying errors of response and other nonsampling errors, including interviewer bias.

6. *Standard Definitions and Classifications.* Wherever possible use the standard definitions and classifications issued by the Bureau of the Budget, so that the resulting data will be consistent with those from other projects. They include, for example, Standard Definitions of Metropolitan Areas, a useful category for educational surveys.

7. *Processing and Interpreting the Data.* Include in the basic design of the survey plan:

   a. procedures for editing and coding (methods proposed, codes, records, and provisions for evaluating coding procedures)

b. tabulation plans, illustrated by dummy tables and describing how to show "unknowns" and refusals (e.g., whether distributed or shown separately)
c. processing plans (whether manual or mechanical, with provision for controlling the errors of processing)
d. outline for the analysis and interpretation of results.

8. *Allowance for Pre-tests and Follow-ups.* Allow for pre-tests of the feasibility of the plan, and for follow-ups necessary to increase the rate of response and the accuracy of the survey results. (Recommendations for pre-tests and follow-ups are given below.)

9. *Comparison with Data from Other Sources.* Plan to compare the data with data from independent sources. Although such comparisons cannot be used to validate the survey results, they are often useful in interpretating them.

10. *Proposed Calendar.* Determine approximate dates for all steps in the survey to ensure orderly completion of the project: beginning preliminary design work, beginning and completion of pre-test, beginning field work or mailing questionnaires, completion of editing and coding, completion of tabulations, completion of preliminary report, completion of final report (including evaluation of the variances and biases of the survey results).

11. *Cost Estimates.* Estimate the anticipated total cost of the survey, including:

a. preliminary and exploratory work
b. development and printing of questionnaires, definitions, and instructions
c. manuals and other instructions for the conduct of the survey
d. collection (mailing or field costs, including interviewing, travel, and supervision)
e. editing and coding
f. tabulation
g. analysis
h. preparation of final report
i. overhead and other costs.

The questionnaire or report form and accompanying instructions should follow the general principles set forth in "Standards for the Design of Report Forms"

(Bureau of the Budget, August 1945—to be reissued as one of the Exhibits to Circular No. A-46). It gives recommendations for the form, the layout, and the printing.

Pre-tests. The feasibility of most survey plans should be tested in advance. Pre-tests should be conducted to answer certain explicit questions:

a. relative effectiveness and cost of alternative questionnaires, instructions, and operating procedures
b. acceptability and intelligibility of the questions by the respondents
c. possible misunderstandings of questions and procedure by the interviewers
d. clarity and applicability of definitions and classifications; reference dates
e. completeness of questions for correct coding and interpretation
f. defects in the forms, maps, lists, instructions, etc.
g. estimates of strata means and variances
h. response rates.

Without proper statistical design, the pre-test may fail to answer these questions. It should be kept as simple as possible to elicit clearcut answers. This criterion, considering the specific objectives and the cost and time elements, should determine: the choice of classes or localities where the pre-test is to be conducted; the approximate size of the pre-test (number of interviews); the sampling plan within the classes or localities selected; the maps, lists, or directories to be used; the pre-test calendar, including start date and date when tabulations are to be made available; the records to be kept; the tabulations required; and the analyses to be made.

The tabulations should be limited to those that answer the specific questions on the pre-test, and should generally not include additional tabulations for research purposes or for preliminary results for which the pre-test data may not be valid. Enough time should be allowed for analyzing the results or the pre-test, in case they are needed in modifying the plans of the main survey.

Follow-ups. In most surveys, response to the first request for information, whether by mail or in person, is insufficient for final estimates; a follow-up is needed. In planning the number and timing of follow-ups, the response to the initial inquiry and the precision required should be estimated. The method of collection used in successive follow-ups—whether mail, call-back interview, or

other means—should be determined by the response rates that can be anticipated from alternative methods, considering their costs.

Analysis of successive follow-ups and of information on the characteristics of those not responding initially is generally needed to prepare final estimates from the survey. Information on characteristics of those unable or unwilling to answer may be useful in interpreting the data.

Partial-Coverage Surveys. In partial-coverage surveys, the mailing or interview list should be carefully defined and fully described. The first step is to define the type of sample design—i.e., whether a probability sample, a case study of type situations, complete enumeration of some previously developed list, a "cut-off" (inclusion of all cases beyond or below a specified criterion), or some other plan.

Selection of the method depends on the purpose of the survey. Probability samples are needed where unknown biases of selection and estimation will be hazardous and where the precision of final results must be known. Use of the cut-off point often produces the data needed at minimum cost and burden. Surveys using cut-off points will be most efficient if designed with the aid of a cost function and the theory of probability to achieve a minimum mean square error.

Once the method of partial coverage has been defined, the sample design should be described, and the universe defined, along with the "frame" or list of units from which the sample may be selected, the basis for grouping these units, the techniques of selecting particular units in each group in the sample, and the methods for summarizing the information collected and for drawing inferences about what has been revealed by the survey.

The description of the sample design might be checked against the outline below. It applies directly to probability samples, but many of its items are relevant to other designs as well. The terminology used in the outline is consistent with "The Preparation of Sampling Survey Reports" (United Nations Statistical Papers, Series C, No. 1 (Revised), 15 February 1950).

1. sampling units: the primary units (description and number in universe) and the sampling units to be used at the second and higher stages (description and number in universe)

2. lists, maps, directories, and other aids to define the sampling units; construction of lists in the field

3. criteria of stratification

4. cost of function

5. the formula for the variance

6. the optimum allocation of the sample

7. method of drawing the sample at each stage, including the ratio sampled, by stratum and by stage, and the techniques of identifying the individual sample respondents (e.g., by use of random numbers, or by systematic selection from a random start)

8. form of estimate proposed, for each variate of major importance:

   a. formula for the estimate; source of benchmark data if employed; weights, derivation
   b. universe parameters (proportions, variances, correlations, and their effect on the sample design)
   c. numerical evaluation of any bias in the formula of estimation
   d. formula for the expected variance
   e. numerical approximation to the variance

9. statement regarding the proposed control and measurement of biases:

   a. methods proposed for reducing non-response

   b. revisits to measure failures and defects arising from under-coverage and over-coverage; misunderstanding the questionnaire and instructions; interviewers' biases; incorrect definition and classification; various kinds of error in reporting

In large-scale statistical surveys made by personal enumeration, one must develop well organized procedures to achieve good performance and maximum consistency. Establishing procedures for the conduct and supervision of field work should include:

1. methods of selecting, training, and supervising the enumerators

2. specifications for training field workers (hours of training, methods and devices for training, whether payment is made for training sessions)

3. organization for supervising the field work, including qualifications and experience of the supervisors, method and frequency of communication between central and field offices

4. basis of payment to enumerators (piece-work, hourly, etc.) and scale of wages and salary

5. plans for measuring differences among enumerators

6. plans for measuring major types of bias, whether arising from the enumerators, the questionnaire design, timing, or respondents

7. anticipated rate of response; differential rate by type of respondent

8. specification of the method(s) used to deal with non-response—the number of call-backs required and how to make them; how to correct for varying probabilities of individuals being available; subsampling of non-respondents

9. provision for central control in large field studies, and establishment of procedures to ensure uniform and consistent rulings on matters not covered by instructions.

Instructions should be developed for all phases of the survey to explain the basic definitions and procedures in detail. Depending on the magnitude and type of survey, materials should include:

1. specifications for selecting and training enumerators, field supervisors, editors, coders, analysts, et al.

2. manual of instructions for field workers, including procedures for listing and selecting the sample, training kits, etc.

3. manuals of instructions for editors, coders, machine operators, et al.

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Large-scale statistical surveys require systematic plans for reporting progress on each phase to determine whether the allowances of time and funds are being met and to permit any necessary modifications in the calendar. These reports should also note particular problems encountered, to help evaluate final results and plan other surveys. Items to be included in the periodic reports are:

1. progress of the work, both in the field and in the office

2. description of special difficulties or costs encountered in the field; proposed remedies

3. description of special difficulties encountered in the offices; proposed remedies

4. description of difficulties encountered with the definitions

5. identification of special biases encountered (non-response, failure to understand the questions, failure of the interviewers to understand the definitions and sampling procedures, etc.).

At the conclusion of every survey, a cost analysis should be made, covering all the items listed. The final costs should be compared with the advance estimates and summarized for future use.

Good statistical practice for the conduct of a survey includes a careful presentation of the results, following the "Standards for the Publication of Statistical Data." These standards, issued in 1957, were developed by the Bureau of the Budget in cooperation with the major statistical agencies of the government to reduce possible misunderstanding or misinterpretation of statistical data.

RESEARCH AT THE COAST COMMUNITY COLLEGE DISTRICT

RICHARD W. BRIGHTMAN
Director, Research and Planning
Coast Community College District

This paper on the organization of research activities in the Coast Community College District describes two basic types undertaken in the past two years.

ADMINISTRATIVE ORGANIZATION OF THE DISTRICT

The two colleges in the district, Golden West in Huntington Beach and Orange Coast in Costa Mesa, together enroll over 27,000 day and evening students. Each college is administered by a president, operates autonomously, and differs markedly from the other in administrative philosophy and practice. They are served by a centralized district administration, both geographically and administratively separate from both of them. Most research activities are conducted within the organization of the district administration. This is not to say that the campuses conduct no research of their own.

Golden West, for example, maintains a Research Advisory Committee, consisting of administrators and faculty menbers, whose purpose is to conduct certain research projects and to assist faculty members in individual research endeavors. Despite these localized activities, most research takes place at the district level as part of a district administrative unit known as the Office of Educational Development.

The Office of Educational Development is headed by a Vice Chancellor for Educational Development, who reports directly to the Chancellor for the district. Research is only one of several activities undertaken by this office. They include aggressive efforts at seeking funds from government agencies such as the California Community Colleges, the California State Department of Education, and the U.S. Office of Education. The office is also responsible for a wide variety of developmental activities, including in-service training programs for faculty members and a program permitting faculty members with developmental projects to submit them for funding out of a special budget appropriated by the Board of Trustees, a feature deserving additional comment at this point.

It is known as the Faculty Fellowship Program and in the last two years has provided over $100,000 to those with developmental projects to pursue. Linking activity with research is an important feature of our organization, as will be shown.

As for financing, the district does not establish a specific research budget. Instead, the total operational budget for the Office of Educational Development contains provision for all district-level research. Some research financing comes from sources outside the district, e.g., U.S. Office of Education and the Chancellor's Office of California Community Colleges. As an example, the recent two-year Project Follow-Through has been completely financed by the California Community Colleges and has provided our district with a research data file particularly useful in conducting follow-up studies and in designing other techniques for evaluating specific instructional programs. We also try to make provision in all proposals submitted to federal and state agencies for funds to evaluate the project. A division chairman leadership conference conducted in conjunction with the League for Innovation in the Community College, for example, contained a budget entry for research to evaluate the conference. Similarly, a grant from the Department of Justice to develop computer-assisted simulation materials for the Law Enforcement Program at Golden West provided for substantial research to evaluate the learning system it developed.

Many community colleges closely associate the functions of research and hustling money from government sources. This association can be an advantage to the researcher because he can write in procedures for evaluating his projects and thereby acquire the wherewithal to conduct his research activities. It is pointless to conduct developmental activity without providing for procedures to evalute the results.

RESEARCH ACTIVITIES

The district's research activities fall into two basic categories: first, institutional research, which produces descriptive information about the district and the students in it; and second, evaluative research, which concentrates on assessing how much different learning systems vary for better or worse from others in measurable student performance and, more recently, in relative costs. As one might suspect, the latter is considerably more difficult. We shall examine the easier one first.

Institutional Research. Institutional research is the total collection of activities that provide information about the college district and its students and faculty to those who can use it.

Institutional research falls into two broad categories. First, it produces numbers that describe the district's financial resources, expenditures, physical facilities, student populations, etc. These numbers appear in a looseleaf notebook maintained for some 70 administrators, faculty members, and student leaders. Entitled *Profile,* the notebook has seven sections: Physical Facilities, Budgetary and Financial Information, The District Community, Enrollment Statistics and Student Characteristics, Faculty and Staff, Programs and Curricula, and Community Colleges. The information in each section is up-dated as current data are received. Sources include the *Orange County Progress Report* prepared by the Orange County Board of Supervisors, the *Directory* of the American Association of Junior Colleges, financial and other reports prepared for the district, including five- and ten-year plans for physical plant and curriculum development, and statistical publications of the U.S. Office of Education.

The *Profile* provides summary data on the district and both colleges. It supplies information not otherwise readily available to the faculty, administration, and students, but which is often of interest to them, particularly when discussing the college with outsiders. It is designed as a permanent reference book and is updated each semester or whenever necessary. Each individual on the mailing list for it receives the new information to replace the old in the notebook.

The second type of institutional research describes student body performance and activities, and issues reports with such titles as "A Comparative Statistical Report of Grade Distribution and Unduplicated Registration Count in the Coast Community College District," "Scholastic Standings of Students on the Dean's List," and "Facts Regarding the Graduates of Golden West College and Orange Coast College, Class of 1971." Their formidable titles alone give one an idea of what the reports are about.

Evaluative Research. The district is more concerned with evaluative research than with institutional research. The former tries to assess the relative effectiveness of different instructional techniques. This means comparing the results of innovative learning systems with conventional teaching practices. Such comparison comes in three varieties. In the first, a comparison of student perfor-

mance under two instructional strategies uses student grades as a criterion for measuring changes in performance and is known as the "normative" measure of evaluation. By and large, educators give this most attention today. A second technique draws on student opinion about whether or not one instructional strategy is more or less effective than another. In the third, native instructional plans are evaluated by comparing how well students meet specific educational objectives as measured by well validated examinations. This last is the most difficult evaluation to conduct and is known as the "summative" method (4).

Despite all the literature on innovative projects in journals like *Telecommunications, Media,* and *Instructional Technology,* relatively little is reported on evaluating the relative effectiveness of any one particular innovative technique compared with any other or with conventional instruction. Moreover, what evidence is available suggests that it really makes no difference. A report by the *Center for Advanced Study of Educational Administration* had this to say:

> We are able to state decisively that no particular method of college instruction is measurably to be preferred over another when evaluated by student examination performances. We may also conclude that replication of the 91 studies examined in detail in this survey would not produce conclusions different from ours. Any future research on comparative teaching methods at the college level must move in new directions (3).

Despite this gloomy initial evidence, it is hoped that different instructional strategies will yield different educational results depending on the subject matter and on the students studying it.

One limitation of the study quoted above was dealing with evaluating students in a normative fashion, i.e., using grades as performance criteria as opposed to evaluating them summatively in meeting educational objectives. It seems that meaningful instructional evaluation must be conducted according to the specific educational objectives being sought by the educational system under examination. In addition, some rigorous effort must be devoted to selecting control and experimental groups and to pre- and post-testing the students in the programs. Without such rigor, no effective evaluation can take place. Unfortunately, it is very difficult to achieve. By and large, teachers are unwilling to have their students treated as guinea pigs and they typically react negatively to the whole idea of evaluation efforts conducted in a rigorous, quantifiable manner. "After all," many argue, "the things I teach and the people I try to teach it

to cannot be measured in quantified terms. How can you evaluate the quality of my effort by using numbers?"

The difficulties in evaluating instructional effectiveness are four in number. First, as mentioned already, teacher unwillingness to use their students as guinea pigs is the most troublesome problem. Second, making comparisons that are truly fair and selecting experimental and control groups that are truly comparable is most difficult. Third, establishing criteria of success or of evaluation is also most difficult. Finally, the validity of measuring instruments for educational programs is equally difficult to establish. All four problems combine in a total situation that makes the researcher's job most formidable.

Even in the face of these obstacles, several efforts to evaluate the instructional programs have been made. They include each of the three basic forms of evaluation. One, for example, is a normative study of the relative effectiveness of two different procedures in handling remedial English. Starting with the fall 1968-69, remedial English at Orange Coast was taught to students requiring it as an integral part of their English 1A Freshman Composition. It was a change from previous years when students needing remedial work in grammar, syntax, and other matters completed a remedial English course before enrolling in Freshman Composition. To assess the difference in performance, if any, between the students who studied Freshman Composition before and after the change, grade and attrition rate measures for English 1A students were gathered over a four-year period. These data established, with statistical confidence at the 10% level, that students performed "better" under the new procedure than under the old. "Better," in this case, meant that their grade-point averages were higher and their attrition rates lower (2).

Another study, of the summative variety, compared performance on a written examination between a control and an experimental group. It tested how well the subjects had mastered certain concepts of computer operation. The experimental group studied them with the use of the computer-assisted simulation exercises; the control group studied them in a conventional classroom environment. In the study, statistical number-pushing did not show mean performance scores between the groups to be significant.

Six procedures were followed in this study:

1. Computer-assisted instruction segments were designed to prepare students

to meet certain specified educational objectives, all of which were articulated in behavioristic terms.

2. The segments were tested in two ways. They were used by students who were not to participate in the formal evaluation study and reviewed by a number of data-processing instructors from community colleges throughout the West. Both students and instructors found them an enjoyable way to learn computer operations. They offered suggestions that were incorporated into the final learning materials.

3. Control and experimental groups were selected from the 28 students comprising the population of the study. Selection was based on SCAT II scores and on a questionnaire (administered in class) designed to assess how much previous training and experience each individual had. Students were assigned to either the control or the experimental group initially on their responses to the questionnaire. Next, the mean SCAT scores for the two groups were compared, but no statistically significant difference was found.

4. Instruction for the control group followed conventional classroom procedures; the experimental group used the computer-assisted simulation exercises.

5. All 28 students were given an examination that consisted only of those items that tested directly for the established educational objectives.

6. The examination scores of the two groups, when compared, showed no significant difference between their mean examination scores.

Other efforts at summative evaluation of instructional programs include comparing the relative effectiveness of two different learning systems used for a selected portion of law enforcement training at Golden West. Also, initial steps have been taken to evaluate how much video-tape presentation in Cultural Anthropology improves student performance when compared with that of students who do not view the tape. The district has not undertaken as many summative evaluation projects as it would like, but the few done have been highly informative.

Informal evaluation, based on student opinion of classroom procedures and of courses in general, is typically performed by faculty members on their own.

Most often, those who want to evaluate how much students favor or disfavor their courses and procedures do not consult the District Research Office. Instead, they either design their own evaluation forms and procedures or use those available to them from the Dean of Instruction. The Research Office avoids trying to work into these efforts, being sensitive to the fact that faculty prefer to keep the results to themselves. Observation, however, leads to the belief that, when students are asked about the quality of an instructional program or course of instruction, most of them tend to bias their answers positively despite assurances that their answers will not affect their grades. Some faculty members have reported the comparative results of using student evaluation questionnaires on different types of learning systems. In most cases, it seems that the new instructional system outperforms the conventional system in the eyes of the student.

Considerably more detail on all three types of evaluation activity conducted at the Coast Community College District was published in a recent work entitled *Strategies for Change.* It is available from ERIC Document Reproduction Service, P.O. Drawer O, Bethesda, Maryland 20014. The cost is 65 cents in microfiche or $6.58 in hard copy (160 pages). Its order number is ED 051 806.

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INSTITUTIONAL RESEARCH AT LOS ANGELES CITY COLLEGE

BEN K. GOLD
Director of Research
Los Angeles City College

INTRODUCTION

One of the nation's oldest and largest junior colleges, 43-year-old Los Angeles City College, serves a heterogeneous population of 20,000 students—all commuters—on its downtown campus.

What effect does the college have on these people? Like almost every other educational institution asking itself this question, LACC has been hard pressed to come up with the answer. The first step was to establish the LACC Research Office to assist in the effort.

Research was originally assigned to the Counseling Center, where it remained until 1966 when the Research Office was established as a separate entity.

ORGANIZATION AND FUNCTION OF THE RESEARCH OFFICE

The office's general purpose and specific responsibilities were agreed on as follows:

1. General purposes

   a. to provide objective and current evidence on how well the college is meeting its stated objectives

   b. to furnish information to administration and faculty so that policy decisions and implementation shall be based on current and reliable factual data.

2. Specific responsibilities

   a. to explore areas in need of research and make appropriate recommendations for conducting it

b. to stimulate, coordinate, and act as consultant for campus-wide institutional research efforts

c. to maintain a library of research materials, including on- and off-campus studies, both for reference and as a background for new studies, and to maintain a continuous inventory of Los Angeles City College research studies

d. to recommend regular procedures for gathering and storing desired information

e. to recommend procedures for disseminating the information to appropriate individuals and groups

f. to conduct research studies as advised by the President of the Research Advisory Committee

g. to cooperate with other colleges, the California Junior College Association, and other agencies in providing and receiving information and in conducting inter-institutional research.

The Office Director received part-time assistance from the Counseling Center secretarial staff and occasional student employees, and his office was placed in a staff position on the college organization chart, directly responsible to the president*.

A 12-member faculty Research Advisory Committee was appointed by the college president with the following functions:

1. to determine areas where research is needed and make recommendations regarding institutional research

2. to recommend procedures for the dissemination of research findings

3. to serve as a resource to the whole college for research design and procedures

*The position has been shifted recently, under a general administrative reorganization, and is now part of the Office of College Development. Functions and duties remain the same.

4. to encourage faculty members to propose and participate in research projects.

IMPLEMENTATION

Twelve to 20 studies relevant to various aspects of the college program are produced each year, and may be requested by any segment of the campus community. The following annotated list of studies produced in 1970-71 illustrates the scope of both topics and initiators.

70-9 Persistence of LACC Students Entering in Fall 1967

A six-semester persistence study of a random sample of fall 1967 entrants, analyzed by sex, high school background, aptitude scores. Initiated by the Research Office to provide baseline date (25 pp.)

70-10 Grading Patterns at LACC, 1955-1969

A study requested by the Dean of Instruction to provide background data for considering changes in grading policies (24pp.)

70-11 The Fall 1970 Applicant Who Failed to Register: Who and Why?

A study requested of all district colleges by district administration to investigate the allegation that certain application and admission procedures "turn away" students (14pp.)

70-12 Academic Performance of Financial Aid Recipients, 1969-71

A description of students receiving various kinds of financial aid and comparison of their academic performance with the student body as a whole. This study elaborated on information required by funding agencies (21pp.)

LACC Faculty Time Allocation Survey

71-1 A study requested by the College Committee on Evaluation and Standards to provide background data prior to recommendations on faculty evaluation procedures. It consisted of structured questionnaire interviews conducted by committee members (12pp.)

71-2 The Fall 1970 Guidance Examination

Annual study of entering student performance levels on the College Guidance Examination, analyzed by sex, age, high school background, previous college (if any), and date of examination, and compared with past performances (17pp.)

71-3 Academic Performance of LACC Transfers to the University of California, 1969-70

Annual analysis of first-semester performance of UC transfers, comparing performances in the various colleges and departments and with previous years (12pp.)

71-4 Some Characteristics and Opinions of LACC Entering Students, Fall 1970: A Report on Responses to the ACE 1970 Student Information Form

Entering students completed the American Council on Education 1970 Student Information Form. A subjective analysis of the ACE computer printout was made in this study. Requested by the Faculty Advisory Committee (19pp.)

71-5 Academic Performance of LACC Transfers to California State College at Los Angeles, 1969-70

Annual study of first-semester performance at the college attracting the largest number of LACC transfers (over 800 per year) (8pp.)

71-6 Survey of LACC Faculty Professional Development Activities

A study requested by the college president to provide background information for possible policy changes relating to faculty teaching schedules (9pp.)

71-7 The Spring 1971 Psych 9 Program: Student Characteristics and Attitudes

An evaluation of a new federally funded program using group guidance techniques to enhance "disadvantaged" students' self-image and peer relationships. Requested by the Dean of College Development (30pp.)

71-8 Some Characteristics of Withdrawing Students, Fall 1970

Analysis of exit interviews of withdrawing students with counselors, probing reasons for withdrawal. Initiated by the Research Office after discussions with counselors (11pp.)

Copies of complete studies are sent to campus and district administrators, members of the Research Advisory Committee, other faculty members directly concerned with the study, and to the ERIC Clearinghouse for Junior Colleges. One-page abstracts are prepared and distributed to all faculty members.

Obviously, studies are not restricted by type. Some are purely descriptive; others are experimental (or at least quasi-experimental, generally using designs no more complex than a simple experimental-control group comparison); still others may be correlational or predictive. Most are arranged in five sections: purpose, procedures, findings, conclusions, and recommendations. Any statistically sophisticated language is limited to the "findings" section.

The second function of the Research Office is to maintain a "research library," consisting of two collections—hard copy and microfiche. The hard-copy collection, for the most part, contains ephemeral or fugitive materials: college research studies, journal reprints, testing company bulletins, papers by graduate students in junior college education classes, YSOE reports, Research Laboratory papers, and relevant junior college material. These items, currently 500 in number, are cataloged by a simple ten-category classification scheme. The microfiche collection consists of all documents processed through the ERIC Clearinghouse at UCLA and copies of *Research in Education*. Faculty and staff are invited to use the library at their convenience or, with ample notice, to request a search on a particular topic. Lists of new additions are distributed occasionally and, when a report of general faculty interest is received, a one-page abstract is prepared.

The Research Office also provides a clearinghouse for questionnaires that reach the campus. Requests for information or opinion are channeled routinely to the Research Office, which provides the information or forwards the request to the appropriate department for reply. Along with this activity the Research Office, in cooperation with the Data Center, is developing a file of information most often requested.

STRENGTHS AND SHORTCOMINGS

From a highly biased point of view, let us examine the strengths and weaknesses of the LACC institutional research endeavors.

On the credit side we think we have made an impact on decision making. For example, remedial and developmental programs have been initiated and revised in accordance with studies evaluating needs and program effectiveness; student surveys based on random sampling designs have helped validate or reject claims of student support for certain issues; in-depth analysis of transfer performance has led to correction of curriculum and course inadequacies; persistence and academic performance studies analyzed by subgroups have helped to quiet extravagant claims of prejudice; a survey of faculty attitudes during an attempted student strike presented administrators with guidelines for future actions; studies of entrance examination performance and procedures have led to their modification.

On the debit side we have a long way to go to fulfill the objective of "stimulating, coordinating, and acting as consultant for campus-wide institutional research efforts." The Research Office produces about 90% of all campus studies. Administrative reorganizations, with possibilities of instructional released time, will, we hope, improve the research output of other segments of the campus community. A closely related shortcoming is the small number of studies specifically on instructional outcomes. Obviously, with an office working on a budget of less than a half per cent of the college's operating budget, not everything can be done, and we still need continuing revisions of priorities.

RECOMMENDATIONS

Assuming that some who read this article are about to begin an institutional research office, we offer these guidelines from our experience:

1. strive to make the office image that of a service agency to the college (especially the faculty), not a bureaucracy

2. concentrate your efforts on campus problems and issues, not on the "nature of the universe"

3. set up data-collection procedures with specific purposes in mind—not just collection of data for its own sake

4. provide precise information and specific recommendations to the campus decision makers, but don't expect them all to be adopted. Remember that all decision makers are bound by their own constraints and that some studies, e.g., measuring aspects of the college environment, will be directed at understanding the nature of the college. They will have long-range rather than immediate use.

5. select an Advisory Committee, representing as many campus areas as possible, as a sounding board for ideas

6. be prepared to provide background material for funding proposals and accreditation teams, but make it an outgrowth of other studies, not a goal in itself

7. consult with college committees as much as possible

8. get as much help as you can in compiling and analyzing data—but *never* neglect a thorough study of the data yourself

9. make your reports readable, using graphic aids where possible. Remember that your readers have not lived with the data as you have

10. don't be "set in concrete;" adapt to changing institutional needs

11. exchange ideas with researchers at other colleges in your area, both informally and through an organization if possible

12. read "The Nature and Role of Institutional Research...Memo to a College or University," a statement prepared for the Association for Institutional Research by Joe L. Saupe and James R. Montgomery, November 1970.

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RESEARCH AND FACULTY INVOLVEMENT IN A JUNIOR COLLEGE

ANN BROMLEY
Director of Research
Santa Fe Junior College

Research in the community junior colleges has only recently become a formal activity. Periodic surveys have been conducted on the extent and role of institutional research (2;3;4;5;6).

Tangible evidence of this growing importance is the increase in the number of junior college consortia being formed and of their representatives who attend the national conferences of the major research associations. During the past six years, the increase in attendance has been from less than five to over sixty participants.

Although research in the junior college is receiving increased emphasis, it still has extremely limited staff and funds. Several of the surveys cited above inquired about the status and size of the budgets for research activities in the community junior college. The results were not particularly consistent, but they showed that, if a research office received from 3 to 5% of the college budget, it enjoyed extremely favorable funding. In many instances, funds were as low as 0.5% of the total budget. Pieper (3) reported that two-year colleges with a research office spend an average of 0.83% of the college budget on this function and that over two-thirds of the research budget is for salaries.

Even with these limitations, a viable program of institutional research can be developed if the researcher uses the talents of the faculty and the administrative staff.

Critical Factors. Two factors are essential if faculty-administrator-student involvement is to be a positive experience:

1. the philosophical environment of the institution toward research and the support by the other administrators are key factors; both are necessary to engage faculty and students in cooperative or college research activities

2. as community junior colleges have always prided themselves on being primarily teaching institutions, the image of the research office must be one of service, cooperation, and availability for assistance to faculty and/or students.

Other factors may be strategic, but these two are fundamental, not only for attracting faculty and students to research activities, but also for implementing some of the research findings in the college.

Ways and Means. These five methods of involving faculty and staff in research and of educating them to its value in their classrooms and in the college are not all-inclusive, merely suggestive, but they have proven worthwhile and effective:

1. communication techniques
2. the use of a Research Advisory Committee
3. faculty sponsors for college-endorsed research
4. involvement in inter-institutional research and consortia
5. participation in individual research and college committees.

Communication Techniques. Each research office has a system of communicating with members of the administration, faculty, and staff, and has effective internal communication. It is undoubtedly aware that, as new staff members join the college, they too must be informed of the services and assistance that research can give them.

In 1969, the ERIC Clearinghouse for Junior Colleges developed a Topical Paper designed to stimulate research in the junior college. It presents a model for instructors, administrators, and researchers who wish to study the effect of their efforts. It begins: "A junior college English instructor thinks his more mature evening students are performing better than his day students. A philosophy professor feels that reprimanding students about performance on an examination does more harm than good. A political science instructor calls on the library staff to help her increase student use of current history materials.... What do all these teachers have in common? All are interested in student learning and all are on the verge of formulating explanations that can

be tested for accuracy" (1:1). This readable Paper, "Is It Really a Better Technique?", may serve as a basic research primer for junior college faculty and staff who are somewhat unsophisticated in research techniques and research design. It furnishes them with a simple way to discover if their suppositions are correct.

One way of communicating would be to send each new staff member a copy of this Topical Paper early in the term, with a letter from the research officer inviting him to scan it. It would bring to his attention that the college has a researcher who is willing to assist him, and that research may not be as formidable as he had thought.

Each year that this device has been used, at least two or three staff members who received the Paper in September have come to the office to discuss questions about their instructional process, and are frequently ready to examine and evaluate their own teaching-learning situation. Sometimes during the in-service training sessions for new faculty and staff, the Office of Research is asked to address them. The Topical Paper may be distributed then if it has not already been sent through the campus mail.

A discussion of communication techniques should not overlook internal college news media besides the local and student newspapers. A good personal working relationship with the editor of the student newspaper and with the college public relations director is helpful in securing releases that involve research and are related to students or faculty. These two influential people are usually receptive to short write-ups on faculty members who are trying something different in their classrooms and more than willing to release an article on the characteristics of the student body for the fall term. They are also helpful in releasing information on any national research projects in which the college may be participating, and for which the students and faculty may constitute the sample population.

Some junior colleges mail new faculty members a packet containing a college catalog, faculty and student handbooks, etc., before their in-service and/or orientation period. Before actual classes start, the staff is likely to read the material more carefully than at any other time. As initial impressions are important, it is therefore suggested that the information on the Office of Research, its services, and its relationship to the academic program be presented in both the

faculty handbook and the catalog in such a way that its service aspects are emphasized.

A most effective communication technique is for the Office of Research to serve as a clearinghouse, sharing reports, professional news items, and material from *Junior College Research Reviews.* The research officer must be aware of the college's activities so that he can disseminate information on them to the individuals on campus with similar interests. For example, as information on computer-assisted instruction is received by the research officer, it should be forwarded to the interested faculty or staff member. He will generally reciprocate, keeping the research officer informed of his own activities and seeking assistance when he needs it.

Most recommendations on the responsibilities and functions of the research officer include the maintenance of a central file system of the college's research activities. Simply collecting and maintaining the files, however, is performing only about one-fourth of a valuable service—the information should be disseminated.

One technique that has proven effective is a periodic formal publication on studies ranging from classroom activities to college-wide research, from short statements on different instructional approaches to dissertation abstracts, from subjective observations to intricate experimental designs, and from updated reports on the previous year's document to projects initiated immediately preceding the publication. Santa Fe has published three such collections, the first in 1969. The most recent publication included two- to four-page abstracts and contained 20 instructional reports; six dissertation abstracts; five reports on inter-institutional projects, eleven on college research, and eight on college-endorsed projects. It is informative; it stimulates faculty and staff to try different approaches and to report them; and it provides personal satisfaction to its authors. It is distributed throughout the college, to the ERIC Clearinghouse for Junior Colleges, and nationwide (to those who request copies, if available).

Research Advisory Committee. A Research Advisory Committee of faculty, staff, and students has considerable value. Students should be included on it for several good reasons. They make useful contributions to the development of any research project, they often help in its review, they may assist in clarifying the purposes and the appropriate populations of the projects, and frequently they constitute the study sample.

The composition of the committee is crucial to its effective functioning. For it, the research officer should attempt to nominate or select individuals who represent the college community. He should serve as chairman, as group leader, and be constantly aware that the committee can:

1. assist the research officer in establishing priorities
2. suggest possible areas of inquiry
3. react to ideas of the researcher and others on possible studies
4. serve as a communication channel for the research office, the faculty, and the students
5. analyze and constructively review the various research activities of the college whether they are carried out by the research office, a faculty member, or a visiting graduate student.

One responsibility of the Committee should be to establish *ad hoc* committees of other faculty members, students, and personnel to serve on a particular project. This committee would develop the project, identify the needed data, and implement the study. The research officer could serve as chairman of the *ad hoc* committee, or simply as a consultant and data source. The Research Advisory Committee can also help evaluate the research program of the college.

Faculty as Sponsors of Research. As junior colleges increase and as training programs at various universities attempt to use them as laboratories for their graduate students, the junior colleges find themselves—students, faculty, and staff—under examination. This scrutiny is directly related to the proximity of the junior college and the university with a junior college training program. At Santa Fe, requests by graduate students to conduct research projects at the college are directed to the Research Advisory Committee for review and approval. The Committee then requests that a Santa Fe faculty or staff member serve as liaison for the graduate student, make appropriate arrangements within the college to facilitate the project, and coordinate the college phase with the university professor directing the research. The faculty member thus becomes involved in it, interested in its results, and aware of its implications for the college.

Involvement in Inter-institutional Research and Consortia. Within recent years, various consortia and research councils have grown up on the junior college scene, including the League for Innovation in the Community College, the Florida Inter-Institutional Research Council, and G.T.70. Participation has many advantages, not the least of which is the in-service training it affords the research officer.

Research councils frequently undertake projects that involve faculty and staff. A researcher is well advised to invite faculty to accompany him to the council meetings when their particular fields are discussed and to workshops that are related to faculty problems and needs.

Recent workshops involving Sante Fe faculty or administrators have been on divisional chairman leadership, projection analysis, the Program Planning Budget System, and the junior college presidents discussing the role and functions of research officers and how to involve them in the decision-making process. Such activities establish a better working relationship between the research and academic areas of the college and provide the expertise for the academician to participate in any project from its beginning.

In summary, organized research in the junior college is a fairly new phenomenon. It is an educative and in-service training activity for many of the faculty and staff who come to the junior college from high school or university environments. For the research to have meaning, the research officer must extend his services to the entire junior college program. To offset a limited budget and staff, faculty support is an excellent resource for developing the research potential. Five ways (communication techniques, the use of a research advisory committee, faculty sponsors for college-endorsed research, involvement in inter-institutional research and consortia, and participation in individual research and college committees) were suggested for research to make a greater contribution to the junior college.

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INSTITUTIONAL RESEARCH IN THE COMMUNITY COLLEGE

HENRY MOUGHAMIAN
Coordinator, Instructional Services
City Colleges of Chicago

CURRENT STATUS

If institutional research is "any endeavor that leads to the improvement of the institution," it is not surprising to find such a variety of research practices. Its problems are as varied as the educational backgrounds and experiences of the individuals who direct it. With such recent attention to the training and nurture of researchers, present directors of institutional research are often people trained in psychology, sociology, statistics, data processing, etc. Considering their different backgrounds and the magnitude of the problems they face (from cost analysis to theoretically-oriented research), the confused state of the research they conduct should not be alarming. If it cannot be clarified with all its current financial and moral support, it will remain in disarray. To structure its institutional research, an institution must "know itself."

Therefore, if an institution begins its research program on "student needs" and the supporting educational services, it has taken the necessary and most important first step. Continuous institutional self-evaluation and improvement can result from well-designed research, e.g., in counseling, library, or testing services, not only in relation to student needs, but also to finance.

Few junior colleges have successfully systematized a research program. They have lacked the three components necessary for success, namely, trained researchers; adequate financing, supporting services, and staff; and a plan of action. Even though the need for institutional research is increasingly recognized, its development still lags. The current emphasis on accountability may stimulate the needed research.

ORGANIZATION AND DEVELOPMENT

The director of institutional research must be part of the chief administrator's staff, so that he can see both long-range and immediate needs, but his functions must not be so broad and time-consuming that, however well-qualified, he

becomes ineffectual. Adequate staff and supporting services, such as data processing, are indispensable to him. Without them, his office is severely handicapped. One person, with limited resources, cannot perform all the functions of an institutional researcher, for much of his time would be spent on both internal and external reports and questionnaires. To expect a well-organized and effective program from a one-man office is sheer folly.

Even though data collection, in itself, is not institutional research, the research office can help organize a system to satisfy many of these inquiries. The following guidelines could be helpful:

(1) the position of Director of Institutional Research must be a *staff* rather than a *line* position

(2) philosophy, policy, and direction for the research should be developed as soon as possible and given adequate organizational strength, staffing, and budget

(3) an advisory committee should be formed to interest faculty and staff in planning and implementing the research program

(4) broad participation by faculty and staff in doing actual research should be encouraged; it is neither desirable nor practical for the research office itself to attempt all institutional studies, but rather, it should provide leadership and support

(5) provision for use of the findings should be assured; they should be widely disseminated within the system, as well as to those directly concerned

(6) for a viable institutional research program, in-service training of faculty and staff on its nature and its importance to decision making is recommended.

CURRENT RESEARCH AT THE CITY COLLEGES OF CHICAGO

The City Colleges of Chicago was founded in 1911, but an office of institutional research was not established until 1966. Since CCC is a multi-college institution, each college has its own research director. Some of the research activities conducted in recent years are:

(1) *Student Characteristics*

As in most institutions, descriptive studies of student characteristics are conducted on a regular basis. With the growth of the occupational and technical program, the inputs and outputs of these programs are beginning to receive more attention. The Illinois Junior College Board, in cooperation with the state community colleges and American College Testing Program, recently did a comparative study of students in the technical-occupational and in the transfer programs. Even though the community colleges are supposed to emphasize counseling, few, if any, measuring instruments have proved useful in student guidance. Recently, both the College Entrance Examination Board and American College Testing Program have developed "guidance instruments" specifically for community college students. They are, in essence, mini-data systems including demographic information, interest scores, and ability scales. This information is essential for guiding the students into beneficial programs.

(2) *Student Success*

Indices of student success are studied on a regular basis. They include course retention, academic performance, number of graduates, and number and performance of transfer students. A recent statewide study of the public and private two-year and four-year institutions ("Performance of Transfer Students Within Illinois Institutions of Higher Education") identified approximately 30,000 transfer students. Their performance was studied for one year. One finding was that as many students were transferring from senior institutions to junior colleges as from junior to senior colleges. Also, nearly half the students at the junior colleges were admitted on probation. This type of study can help in determining the success of transfer students and in statewide planning and articulation.

(3) *Students' Attitudes, Values, and Perceptions*

R. Edmund Dolan, using the *Institutional Self-Study Survey*, recently studied how students in different programs (Vocational-Technical, College Transfer, and General Studies) assessed (a) the quality of instruction, (b) the value of student services, and (c) specific college policies, practices, and facilities. He also sought to determine if various success rate measures were related to the students' assessment of the college. A student survey like this can be helpful in an institution's self-evaluation and improvement. Similar feedback by faculty and staff is also most helpful. Another study by Ernest Jaski of the City Colleges of Chicago investigated the impact of the junior college environment on student values and retention.

(4) *Learning*

The topic of learning has been examined for many years, but except for a few general principles, the research has not been fruitful. The teaching-learning process is so complex that it is difficult to isolate and study the relative influence of such variables as the abilities and characteristics of the learner, the method of instruction, learning experiences, class size, materials, and evaluation techniques. When the heterogeneity of community college students' abilities, aspirations, and interests is added to the already complex learning situation, questions will inevitably arise about the adequacy of the programs.

Research related to learning has been scarce in the community college. Since junior colleges have many low-ability students, both programs and methods deserve extensive study. A survey conducted by the College Entrance Examination Board entitled "Developmental Programs in Midwestern Community Colleges" (Higher Education Surveys Report No. 4) by Richard I. Ferrin reviews current activities, placement procedures, staffing practices, and evaluation techniques.

Television instruction has been used by the City Colleges of Chicago since 1956. Thanks in part to the extensive preparation necessary (development of study guides and course objective learning materials, and evaluation devices), it has proven to be an effective instructional tool, especially for highly motivated adults.

The use of the computer in instruction has increased in the past few years. Even though many doubt that it is an effective tool, research has yielded little data on its impact on learning. National Science Foundation support of regional networks has helped develop software and inspired enthusiasm for computer applications. Problems encountered by the CCC in using one of these networks were the lack of faculty training in computer technology and poorly developed computer problem-solving programs in the academic disciplines. The high cost of computer use, especially interactive systems, makes its value in the learning process questionable.

A current project by Emmett Jones at Olive-Harvey College in Chicago is the type of research that holds much promise for the community college. Using Ben Bloom's "learning for mastery" concept, Jones is working with faculty members to individualize the instructional program for their students. The mastery concept ranges from relating sequential learning units to characteristics of the

learner to evaluating the total learning process. Other research projects, in various disciplines, are needed to evaluate its effectiveness.

MEASURING INSTRUMENTS

The construction and validation of achievement examinations can be most valuable in measuring the effectiveness of instruction. Once objectives are stated in behavioral terms, their attainment can be measured not only by tests but by other devices as well. Expressing achievement in qualitative terms can be useful both in evaluating growth and in furnishing local norms for comparative purposes. As there can be no accurate prediction without reliable criterion measures, the implication for institutional research is clear. At CCC, an extensive computerized item analysis program gives faculty the opportunity to develop effective examinations in their own subject fields. These analyses provide valuable data not only on attainment of course objectives but also on the discrimination value of the individual test items. The use of poor evaluation principles has been a major shortcoming in community colleges and in education in general.

The current emphasis on credit by examination gives us the chance to allow for individual differences through the preparation of both self-study materials and suitable examinations. Examinations prepared by the major testing companies, especially the technical and occupational, are limited in scope. A recent study at the CCC contrasted characteristics of successful and unsuccessful students in its credit-by-examination program according to ability, sex, highest level of educational aspiration, previous college work, enrollment status, and age. This type of study and follow-up studies of the successful students can be helpful in counseling students toward their educational objectives.

TRENDS

Student participation in research activities has been primarily as respondent to demographic and planning surveys. Today, students' views are being sought by more and more institutions on policy making, evaluation of the instructional program, student personnel services, and facilities. To a more limited extent, the same is true of faculty participation. Faculty support for research must be increased. Most institutions need a "research center," i.e., a center where faculty may obtain help in developing experimental designs and evaluation devices.

Not only does every community college need a comprehensive research program, but it also needs more inter-institutional cooperative research projects, from descriptive studies to controlled experiments. Recent years have shown a trend to such broad-scaled research. Kenneth Anderson and others at the University of Kansas completed several studies of community college students as a part of their Master Planning Commission report. Banning Hanscom of the Minnesota State Junior College System recently followed up the transfer students of all eighteen Minnesota junior colleges. A similar study was done in Illinois.

With campus-wide cooperation, free access to a computer, a solid data-base (and a little luck), the researcher will have more time for qualitative analysis of his institution.

INSTITUTIONAL RESEARCH AT HARCUM JUNIOR COLLEGE

BORIS BLAI, JR.
Director of Research
Harcum Junior College

> "An institution of higher learning that stops growing, improving, implementing, and evaluating is a danger to both society and itself. What right does an institution have to exist when it no longer gives its best in attempting to cope with the increasing complexity of the society it serves?" (7:1).

A college must continuously analyze its approaches, methods, and programs to insure the best possible education for its students. Under established management policy, Harcum* systematically gathers information through self-evaluation studies and uses the data in management, faculty, and staff decisions to modify (improve) existing practices.

In this paper, institutional research is defined as "self-study by a college designed to improve the institution" (1). The definition applies not to a single unit such as faculty, students, or administration, but to *all* dimensions of the college. It is a "shared" activity; faculty, administration, and staff actively participate, as shown by the following:

1. Faculty participate in policy deliberations primarily through six standing committees, academic division meetings, the Faculty Assembly, and the College Council. In 1970-71, of the 72 policy-and-procedure actions recommended by these groups, 21 were on research inquiries by faculty members.

2. At the request of various faculty committees, the Office of Research conducted 14 additional research investigations, furnishing reports to facilitate appropriate recommendations.

3. The Research Office believes "that successful linkage between educational

*Harcum is a fully accredited, private, independent junior college for women located in Bryn Mawr, Pennsylvania. Its full-time day division enrolls between 600 and 700 students; a part-time evening and summer division enrolls between 200 and 300.

research and practice is achieved when user and (researcher) interact collaboratively, stimulating each other's problem-solving behavior" (4).

The Director of Research reports directly to the president and is responsible for:

1. the development and conduct of the centralized college institutional research function, and for stimulating, helping, and coordinating the studies of others to avoid duplication

2. all activities necessary for on-going evaluation of how well the college achieves its self-imposed objectives

3. cooperation with other college personnel on theoretical ("pure") research to expand basic knowledge in the complex teaching/learning process

4. conducting, at the direction of the president, studies on administration, admissions and enrollment, curriculum, faculty, finance, goals and objectives, instruction, plant, public relations and development, and students

5. encouraging participation of faculty, administration, and staff personnel, in both the planning and conduct of research

6. providing personnel with definitive data (descriptive and/or quantitative) to help them make decisions.

To help insure orderly and comprehensive institutional research, a program ckeck-list is essential, for it determines the scope of topics for inquiry. The detailed "Areas of Institutional Research" cited by Swanson (8) have been a valuable guide at Harcum for both the cyclical research efforts (for long-range trend analysis and planning) and spur-of-the-moment inquiries (for immediate decision making).

Instant solutions to immediate problems are not part of the process, although both faculty and administration must watch both long-range and day-to-day operations. Combined, the two functions (long-range and immediate) have comprised our total research effort for several years. Undoubtedly additions can be made to Swanson's list (8), but it has served us admirably. We recommend it to our readers.

Although the volume of research activities is not necessarily a valid criterion of their quality, it reveals both their extent and variety. During 1969-70, the Research Office prepared 93 institutional research reports; for 1970-71, the total was 74.

Since 1963, the Office of Research has published 45 articles in professional journals; since 1967, it has prepared some 229 IRR's (Institutional Research Reports) and RM's (Research Memorandums). The latter are brief notes on alumnae achievements; curricula, programs, etc.; faculty comments; student achievement, characteristics, comments, and evaluation; freshman applicants, and the like.

The various studies conducted fall conveniently into three broad categories (numbers in parentheses show the percentage of academic year 1970-71 studies in the particular category):

1. *Survey Research* (38%): the collection of data by questionnaires, analysis. and records or interviews of either samples or whole populations.

2. *Experimental Research* (50%): experimental manipulation of selected (independent) variables, often using experimental and control groups to note what effects, if any, occurred in the criterion (dependent) variables.

3. *Historical Research* (12%): answering certain questions by examining college records for valid information and by careful statistical treatment of it.

We all know that on occasion even the carefully developed statistics can be misleading. Like a ventriloquist's dummy, the figures can be made to say whatever their manipulator wants to say. Fortunately, our statistics have been more valid than the above quotation would suggest.

Our principal techniques for data collection have been: (1) before-and-after evaluation, (2) check-lists, (3) correlational studies, (4) interviews—structured and open-ended, (5) inventories—personality and skills, (6) observation schedules, (7) parallel-group surveys, (8) questionnaires/opinionaires, (9) rating and ranking scales, (10) statistical treatment of records data, and (11) tests.

Many of the techniques for junior college self-evaluation may be locally developed; others are better for regional or group action; still others are best

used on a nationwide basis. The self-appraisal needs and techniques we follow include:

1. construction or adaptation of an academic test for adults

2. interviews to estimate both the student's experience in a field and his likely skill level

3. a standard system to keep current with community employment needs and a pattern to describe students accurately to prospective employers

4. a technique to describe prospective transfer students to four-year schools

5. tests to measure academic characteristics of student groups for assessing programs and instruction

6. measurement of non-cognitive characteristics of students to assess the collegiate environment or "press," effects of home environment on personal-social adjustments, shifting values, etc.

7. a clearinghouse for employment information and maintenance of applicant qualifications records

8. joint study of characteristics of successful transfer students and of institutional characteristics of the receiving four-year school to help two-year school counselors with future transferees

9. transfer agreements with four-year schools on acceptable levels of academic achievement and test performance

10. cooperative studies of college and high school curricula to facilitate continuity in the sequence of their academic programs

11. criteria for study of junior college administrative practices

12. local validation of high school records and test data as predictors of success, for both academic and vocational students

13. appropriate measures of vocational interest, skills, and aptitudes to assist counselors

14. follow-up studies of former students for curricular revisions

15. a student personnel program statement of goals and evaluation criteria (6).

Swanson (8) has noted that "few junior colleges with institutional research programs have developed any way of evaluating the effectiveness of their efforts, and most of those only in a subjective, nonscientific way." In spite of the "non scientific" nature of the following observations, they have yielded useful results at Harcum.

A report by an evaluation team from the Middle States Commission on Institutions of Higher Education noted that because *all* at Harcum were convinced of the worth of self-evaluation, it will undoubtedly be continued. The team also reported that every institution determines how well it is achieving its objectives—though never to its complete satisfaction—and that Harcum's self-study efforts indicate considerable success.

During the spring of 1971, some 90% of the faculty and staff responded to an anonymous questionnaire on their opinions of the Institutional Research Reports, which present findings to all who want or need them.

Virtually all respondents (94%) rated IRR's as being of "some" to "exceptional" value, most (52%) clustering at the mid-point rating on a five-level scale. (No claim is laid to equal-step-gapping or other sophisticated measurement for this simple, face-valid rating scale.) The "interest" rating for IRR's follows the same general evaluation pattern.

During the academic year 1970-71, student interest in institutional research was shown by the fact that, without any college pressure, direct or implied, each issue of the student newspaper carried at least one item reporting on it. Students also constantly expressed interest in results of the various questionnaires that solicited their views, comments, and valuations. Numerous informal student contacts (such as dropping by to "rap" and sample the ever-available candy) indicate considerable awareness of the Office of Research.

On the basis of these multi-evaluations and informal feedback from the Board of

Trustees, it has been the consensus of college management that institutional research efforts have been of practical benefit to the college. In substance, they agree with Marsee (6): "Education has become big business. Institutional research is becoming increasingly important. Today enlightened educational leaders use the most advanced management techniques. In this setting, institutional research is a must."

Since Harcum decision makers continue to seek improved methods of college operation, the rationale for institutional research is crystal-clear and compelling. Under progressive, innovative management, institutional research has moved into the mainstream of college operations. By becoming directly involved in *filling information gaps*, it is relevant to *all* institutional problems and operations: (1) research inquiry, (2) conclusions, (3) recommendations, (4) decisions, and (5) planning activity—in short, the necessary steps *prior* to management decisions on new or modified practices.

Although it may be self-evident, it is pertinent to note that the essential management function of self-evaluation is either an impossibility or meaningless "window-dressing." The endorsement of the research program by executive management must be *total*. Management has supported Harcum's institutional research efforts with freedom of inquiry, financial support, and follow-up of research findings.

Since Harcum is a private school, without public tax support, the financing of its institutional research is wholly determined by college executive management, with no sustaining public money. (This is available only under grants received for the conduct of specific projects.) On occasion, when the project warrants, special funds are furnished by the appropriate college department (e.g., academic division or administrative office).

As Cottrell (5) has noted, "IR (institutional research) must be adequately financed, a recommended amount, according to recognized leaders in junior college research, being 2 to 3 per cent of the college budget, or a minimum of $10,000 to $25,000 for a small college on a yearly basis."

To this I would add a brief comment on staffing. Efficiently used, free time of personnel in other offices can be a valuable source of staffing support. For example, the telephone receptionist, in her spare time, can assemble completed reports; clerks in the mail room can address envelopes or dispatch question-

naires; and student help can free staff from the routine tally-work of research-generated data.

Certain problems have arisen in disseminating the results (tangible products) of our research because of the diversified backgrounds of our various "publics." Informing them most effectively has been a challenge in communications, for we seek to engender among them a positive attitude toward institutional research. Routinely, the reports are reviewed to see which particular study should go to whom and how best to send it. At present nine "publics" receive research information in nine forms.

An effective program of institutional research should:

1. Formulate a *basic philosophy* of institutional research, one that projects for a particular institution "the creative, dynamic spirit of curiosity." This may be done through continuing and enlightened administrative *leadership* and through *wide involvement* of staff members.

2. Provide specific and adequate *financial support* for institutional research. Someone once said, "A budget is the most important statement of the philosophy of a college." The financial support of institutional research should not be left to chance.

We at Harcum have therefore concluded that the pragmatic answer to "why institutional research?" is that it provides ways and means for identifying and analyzing the college's problems. This is the *first major step* toward improving current programs and operations and planning intelligently for the future (3). In short, institutional self-study is necessary to avoid the twin pitfalls of complacency and misdirection.

One final aphorism: Haste makes waste. Most innovative programs in education, including institutional research programs, have been plagued by the tendency of both observers and participants to want immediate and visible results. We suffer from the habit, as former Commissioner of Education Harold Howe, put it, of pulling up the plant by its roots every few months to see if it is alive and growing!

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OPERATIONAL NOTES FROM AN AMATEUR RESEARCHER

RICHARD W. BRIGHTMAN
Director, Research and Planning
Coast Community College District

I've come to recognize that education is replete with amateurs—teachers of business management have never managed a business, astronomy teachers have never been astronomers, music teachers do not play, and teachers of computer programming have never written a program for a real-life applicaton. This is probably as it should be. Certainly, it is not only possible but perhaps desirable that teachers teach others to do what they themselves do not do.

A number of graduate schools of education offer extensive programs in research and evaluation. Alumni from these institutions doubtless fill research posts at community colleges. As a result, since many of us are amateurs in the research business, I speak from this perspective. I have found certain aspects of day-to-day research operations particularly noteworthy, and offer my observations on them in the hope that others may be spared some trouble.

This paper, dealing only with operational matters, leaves discussion of the organization of research activities and of specific research projects to its companion piece, "Research at the Coast Community College District."

DATA GATHERING

Of all the various activities of a researcher, I look upon data gathering as one of the most demanding. Many of the data we summarize and distribute about our student population and various district operations can be gathered by examining various official records such as budgets, grade reports, transcripts, and the like. Though tedious, this can yield information as accurate as the time and effort spent collecting it afford. The most demanding kind, however, involves soliciting information from students, ex-students, and other individuals on a personal basis. We have sent questionnaires to college presidents and chancellors, to graduates, to withdrawing students, to dropouts, to faculty members, to employers, and to students while in class. We have employed the U.S. mails, telephone questionnaire techniques, and even faculty members to

distribute and gather questionnaires, both in class and at various local industrial concerns. As a result, I have concluded that questionnaires (2), however distributed, are no way to gather accurate information.

Most colleges gather basic data about individual students when they register and fill out applications for admission. This is not very promising as far as the quality of information obtained. Consider, for example, the application-for-admission form, which is filled out by our students in one of two circumstances —either at recruiting sorties to local high schools or when the students come to the admissions office (or bring one they have received through the mail).

As neither situation permits a thorough audit of the form, we have come to question whether the information given on it can be relied on at all. For example, one question asks for ethnic background. The application form gives a number of choices to be answered by putting an "X" in a box beside such items as "American Indian," "American Negro," "Caucasian or other White," "Mexican American," "Oriental," and so on. This seems a fairly straightforward question, but analysis of how students respond suggests otherwise. From their answers, we had 537 American Indians attending our district during the spring semester, 1970-71. One correspondent remarked that ours must be the largest single off-reservation group of American Indians in the United States. Among possible explanations for this obvious error are that "American Indian" is the first item to be checked and that many students identify with American Indians, even in personal dress and grooming. It doesn't really matter why the number is wrong—we cannot use it.

If we can't discover such fundamental information as ethnic or racial background, we suspect that more esoteric information would be even more difficult to gather. We ask applicants, for example, what their status was on leaving any previous college they attended. We also ask them if they are working for a degree, how many college units they have earned, and so forth. We also ask them for their address and telephone number. As with many junior colleges, many of our students drop out or withdraw after the first semester. A couple of years ago, we tried to follow up every student who left—first, by sending them a mail questionnaire, and then by telephoning those who did not return it. A surprising number of returned questionnaires, bearing "permanent" addresses, were marked "undeliverable" by the post office. Our telephone

procedures yielded similarly disturbing results. Over half of those we tried to call had given us numbers from which they had moved or had never had in the first place.

When prospective students fill out an application form *in absentia,* there is no practical way to audit their answers or to check their address, telephone number, family income, racial background, or previous college experience. When they register for classes, however, one expects that the personal contact with officials in the process would influence them to improve the accuracy of the information they give.

Typically, we gather little information from students when they register. Registering 1,500 or more students in one day leaves little time for questions. For a few semesters a nine-question survey, the size of an IBM punched card, was given to each student at registration. I asked about work hours per week, college major, transfer plans, etc. Later, we revised the questionnaire slightly, using the same questions, but changing the format for easier keypunching. Inadvertently, both forms of the questionnaire appeared in one of the registration lines at Orange Coast College. As a result, 687 students answered the nine questions at one point in the registration line and the same ones a few minutes later, the only difference being in the questionnaire form itself. Discovering this error, we compared all the questionnaires that had been answered twice, with startling results. Students had answered the questions differently, even though they were exactly the same ones they had answered only moments before. The percentage of students who gave different answers varied from one question to the next . One question was answered differently by only 16% of the students; another, by 66% of them (3). Such results cast a shadow on the value of student data collected at registration.

Students doubtless had important reasons to answer so inconsistently. One could be the format of the questionnaire, which has an important influence on the way it is answered. How can one determine, without personally interviewing students and verifying their answers, which format yields more nearly accurate answers? Another reason, perhaps even more important, is that students are mainly interested in enrolling in their necessary classes before they are filled. As a result, they do not look charitably upon answering questions before or after signing for their classes. Furthermore, college registrars have little more, if any, charity toward research activities conducted during the process, for they want to move as many students as possible along as fast as possible. In short,

students aren't concerned about answering accurately and administrators aren't concerned about seeing that they do.

If getting information from students under these conditions is difficult and yields inaccurate results, a more controlled situation should yield better information. One such situation should be the classroom itself. For a while, we delivered two-item questionnaires to each student for every course he took. They were identified with the student name, the course name, and the instructor name. They were packaged by course and delivered to the instructors, who gave them to the students. The students answered the two questions and gave them back for return to the Research Office. Even in this large district, few faculty members reported that they found the data gathering prohibitively cumbersome. On the other hand, judging from the reaction of their students, most thought it unlikely valuable information could be gathered in class. Many instructors did not play the game at all, for 238 of the total 1,685 classes did not return the questionnaires. In other words, 103 of the 716 faculty members did not return the questionnaires sent to them (4).

We maintained the in-class questionnaire for three semesters. We were then convinced, from faculty member feedback, that students were not taking them seriously, even though they asked only (1) why the student was taking the class, and (2) if he thought the class would be valuable to his long-term career plans.

We believe that, if tender loving care is lavished on selected faculty, in-class questionnaires can provide accurate and valuable information for evaluating specific segments of a college program. Our attempt, however, to gather information from all courses and all programs was a hopeless task, even for such a broad area as vocational or trade and technical education. The main problems are the logistics of producing, distributing, and gathering back all the questionnaires and, even more important, convincing faculty and students that the information is important enough to make it worth their while.

Not all uses of questionnaires, of course, are fruitless. Educational professionals provide good data, for they look on it as a professional responsibility to give information to those who are conducting surveys and working on other research projects. Faculty members and administrators in our district have cooperated on such surveys, but as our primary responsibility is gathering data to help evaluate and improve our own educational program, we look to the

student as a most important source of information. Questionnaires are not very effective in tapping this source.

It would be unfair, of course, to write off questionnaires without offering an alternative. In the school year 1971-72, we plan to investigate two such alternatives. The first is the patterned interview, in which a small sample of students (including graduates, withdrawn students, and enrolled students) will be personally interviewed to gather specific information about experiences in college and how we might have made the experiences more valuable for them. We hope to use a similar technique to gather information from employers, parents, faculty members, and other clientele of our colleges. A second technique uses panels of students, faculty members, citizens, lay advisers, and the like. These panels have a variety of advertising and market research applications in industry. We can doubtless find a way to apply the technique to community college evaluation.

DATA PROCESSING

Most institutional researchers, amateur or professional, rely on centralized computer services if available. Lacking these, they use an adding machine or desk calculator and perhaps a clerk or two for basic tabulation tasks. Either way, data processing is an operational problem for the researcher, for even if a computer is available, he is likely to be frustrated in his efforts to use it. No computer center, with its other important duties, has time left over for new applications in a research project.

Heretofore, researchers have simply had to queue up with others and hope their job will be done sooner or later. We have solved much of the problem, however, through the use of teleprocessing. Our office has a computer terminal giving us access to the Coast Community College District computer system, using a programming language known as APL (*A Programming Language*). We can thus circumvent certain difficulties and delays normally associated with using a large centralized batch computer system.

To help the frustrated researcher, I've tried to pass on this good news about teleprocessing. With such a system, most research applications, particularly the experimental or evaluative, can be accomplished most readily, though not the large reports with all their reproduction of statistical data. It works for such worthwhile research as assessing the effectiveness of alternate learning systems. The type of terminal device we use can be made available to almost

any research function for surprisingly little money. The typewriter terminal and a device for transmitting and receiving via telephone lines costs less than $150 a month. For about $12 per hour, high-powered computer systems can be made available through this terminal. This access to high-powered processing ability and mass data storage thus costs less than a good secretary. Learning to operate the system requires only three or four days' time.

REPORT DISTRIBUTION

Gathering data and transforming it into usable form assumes that it will be delivered to those who can use it, both inside and outside the college. The problem is to determine who should and should not receive which report. The simplest solution is to send a copy to all who might have even the slightest interest in it. With a large budget for paper and other supplies, this approach is at least economically feasible. It is vulnerable, however, to those who charge that the Research Office is only a paper mill, filling the school's wastebaskets. The other extreme is hardly an answer either—sending reports to no one. This approach would lead someone, if not the researcher himself, to conclude that he is really not needed.

Our distribution system falls between these two extremes. Reports on financial resources, expenditures, physical facilities, student population, etc. go to some 70 administrators, faculty members, and student leaders. Those on procedural matters, produced periodically, are distributed to a special mailing list, which is regularly updated.

CHOOSING RESEARCH PROJECTS

Some say that research projects should not be undertaken unless some college official is clearly committed to use the information for decision-making purposes, helping him to choose between controversial alternatives. There is much to say both for and against this approach. If followed, it would provide information only to those able to specify exactly what they need. Only a few decision makers have so firm a grasp on what they need and we should provide them with it if we can. For the most part, however, we can best help decision makers by having a wide variety of information available, and by helping them choose the information most helpful for their decisions.

A second, though specious, argument against this approach is that research activities, as they accumulate information about the organization, may bring to

light completely unanticipated facts. As a result, entirely new fields of inquiry and new categories of decision may bubble to the surface.

The approach we follow is that research projects be undertaken at the request of almost anyone in the district or on our own initiative. We investigated the effects of new remedial English procedures on Freshman Composition students when asked to do so by the English Department. The chancellor asked us to examine the relative costs of auto-tutorial instruction in biology compared with conventional instruction. We also gather data on student performance in all classes solely to have it available for whoever might want it for whatever purpose.

READING RESEARCH REPORTS

The conscientious researcher will try to prevent his readers from misinterpreting his findings. It is easy to offer no interpretation or conclusions, as if your task were only to present the information, but researchers have a responsibility to try to give meaning to all these figures. If gathering data is difficult, presenting it and drawing reasonable conclusions is equally challenging.

It is as important for the researcher to show what he did not find as what he did. Extreme care must be taken to explain the significance (or lack of significance) of positive, negative, and inconclusive findings. Readers are prone to accept only those parts of a report that fit their prejudgments.

CONCLUSION

This amateur researcher has attempted to comment on what is and is not going on in research and on what will soon be required—referring, of course, to the current interest in accountability and the general trend toward mechanistic approaches to evaluation.

Accountability; the development of planning, programming, and budgeting systems; performance contracting; and many other topics promise make projects for the researcher, whether amateur or professional. Our few forays into comparative cost analysis of instructional programs (5) foretell a monumental job. An accurate cost analysis of a community college instructional program will require either the use of elaborate cost allocation formulas (6) or a complete restructuring of the college accounting system.

These words of Robert Wolff may help the researcher maintain his perspective and balance:

Ironically, paradoxically, there are some human activities in which subjectivity is more efficient that objectivity, in which calculation kills and instinct inspires. Art and love are notoriously of such a nature. I believe that education is also (7).

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